

## Chapter E 121

## GENERAL REQUIREMENTS APPLYING TO OVER-HEAD AND UNDERGROUND LINES

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**E 121.01 Design and construction.** All electrical supply and communication lines and equipment shall be of suitable design and construction for the service and conditions under which they are to be operated.

**History:** Cr. Register, November, 1961, No. 71, eff. 12-1-61.

**E 121.02 Installation and maintenance.** All electrical supply and communication lines and equipment shall be installed and maintained so as to reduce life and fire hazards as far as practicable.

**History:** Cr. Register, November, 1961, No. 71, eff. 12-1-61.

**E 121.03 Accessibility.** All parts which must be examined or adjusted during operation shall be arranged so as to be readily accessible to authorized persons by the provision of adequate climbing spaces, working spaces, working facilities, and clearances between conductors.

**History:** Cr. Register, November, 1961, No. 71, eff. 12-1-61.

**E 121.04 Inspection and tests of lines and equipment.** (1) **WHEN IN SERVICE.** (a) *Initial compliance with rules.* Lines and equipment shall comply with these rules upon being placed in service.

(b) *Inspection of structures and equipment.* Each pole, post, tower, structure, conductor, or guy used for the support or attachment of electrical conductors or lamps shall be inspected with reasonable frequency and all major equipment shall be inspected periodically to determine its fitness for service and the necessity for replacement or repair.

(c) *Tests.* Lines and equipment shall be subjected, when necessary, to tests which will determine their fitness for service.

(d) *Record of defects.* Any defects revealed by inspection, if not promptly corrected, shall be recorded.

(e) *Remedying defects.* Defective lines and equipment shall be put in good order or effectively disconnected.

(2) **WHEN OUT OF SERVICE.** (a) *Lines infrequently used.* Supply lines and equipment infrequently used shall be inspected to see that they are in safe condition for service.

(b) *Lines temporarily out of service.* Lines temporarily out of service shall be maintained in such condition that a hazard will not be created.

(c) *Lines permanently abandoned.* Lines permanently abandoned shall be removed.

*Note:* Overhead service drops to consumers may be disconnected without removal if the service is discontinued. This is considered good practice when it is undesirable to remove the service drop entirely.

(3) **TEMPORARY DECORATIVE LIGHTING.** Attachment of temporary decorative lighting on poles shall not be made without the concurrence of the owners and the occupants thereof.

**History:** Cr. Register, November, 1961, No. 71, eff. 12-1-61.

**E 121.05 Isolation, guarding and marking.** (1) **CURRENT-CARRYING PARTS.** To promote safety to the general public and to employees not authorized to approach conductors and other current-carrying parts of electrical supply lines, such parts shall be arranged so as to provide adequate clearance from the ground or other space generally accessible, or shall be provided with guards so as to isolate them effectively from accidental contact by such persons.

(2) **NONCURRENT-CARRYING PARTS.** Ungrounded metal-sheathed service cable, service conduits, metal fixtures, and similar noncurrent-carrying parts, if located in urban districts and where liable to become charged to more than 300 volts, shall be isolated or guarded so as not to be exposed to accidental contact by unauthorized persons. As an alternative to isolation or guarding, grounding of certain non-current-carrying parts as permitted by subsections E 121.06(2) and E 128.01(1)(e) may be used.

(3) **MARKING OF POLES CARRYING HIGH VOLTAGES.** Section 196.67, Wis. Stats., provides the following in part: Every corporation, company or person constructing, operating or maintaining an electric transmission line with a voltage of six thousand or more between conductors or between conductors and the ground shall place warning signs, not less than four feet nor more than six feet from the ground, upon all poles or other structures supporting such line when within one hundred feet of school grounds; and when within one hundred feet of any place where such line crosses a public highway; and when within any city or village.

Every such sign shall be in red or black letters not less than 2 inches high on a background of white and shall read "Danger—High Voltage".

*Note:* This has been interpreted as applying to distribution as well as transmission lines.

**History:** Cr. Register, November, 1961, No. 71, eff. 12-1-61.

**E 121.06 Grounding of circuits and equipment.** (1) **METHODS.** The methods to be used for effective grounding for lightning arresters of supply lines, for circuits, for equipment and for wire raceways are given in chapter E 103. The methods to be used for grounding of lightning arresters of communication lines are specified in section E 800.31.

(2) **PARTS TO BE GROUNDED.** (a) Metal conduits, cable sheaths, and frames, cases, and hangers of equipment shall be effectively grounded.

1. Exception 1: This order does not apply when such parts are guarded from accidental contact by unauthorized persons.

2. Exception 2: This order does not apply where such parts are 8 feet or more above the ground.

3. Exception 3: This order does not apply to metal conduit and cable sheaths enclosing communication conductors, or supply conductors of not more than 300 volts, provided such conduit and sheaths are not exposed to probable contact with circuits of more than 300 volts. B2

*Recommendation.* It is recommended that supply cables have the sheath bonded to any conduit extending above the ground surface.

*Note:* Metal conduit above ground which contains extensions from metal-sheathed underground cable is considered to be sufficiently grounded by the cable sheath, provided such sheath is in good contact with the earth or is connected to a good ground. (For method of grounding see Introduction.) del.

(b) Fixed non-current carrying parts on poles which are more than 8 feet from the ground such as transformer cases may or may not be grounded depending on the company's rules. The company shall follow a standardized practice and make their operating rules conform to the practice adopted. If a portion of these non-current carrying parts are located within 8 feet of the ground they shall be grounded.

(3) USE OF GROUND AS PART OF CIRCUIT. Supply circuits shall not be designed to use the ground normally as the sole conductor for any part of the circuit.

**History:** Cr. Register, November, 1961, No. 71, eff. 12-1-61.

**E 121.07 Arrangement of switches.** (1) ACCESSIBILITY. All switches shall be readily accessible to authorized persons.

(2) INDICATING OPEN OR CLOSED POSITION. All switches shall indicate clearly whether they are open or closed.

(3) Pole-top switches accessible to unauthorized persons shall have provision for locking in both open and closed positions.

(4) UNIFORM POSITION. The handles or control mechanism for all switches throughout any system shall have, so far as practicable, the same position when open and a uniformly different position when closed, in order to minimize operating errors. Where it is advisable to depart from this practice, the switches should be marked so as to minimize the liability to mistakes in operation.

**History:** Cr. Register, November, 1961, No. 71, eff. 12-1-61.